

SHAOFU WANG

Shaofu.Wang@uwaterloo.ca — <https://Linkedin.com/in/shaofuwang> — <https://Shaofuwang.me>

WORK EXPERIENCE

Design Engineering Intern

Jan 2026 – Apr 2026

Commercial Aircraft Corporation of China (COMAC)

Internship

- Reduced cockpit tray table support mass by 40% from 2.5 kg to 1.5 kg by setting up Ansys Workbench topology optimization, revising internal support geometry into DFM-compatible holed support matrices, and validating a 1.5 safety factor using CCAR-25-derived static, fatigue, and abuse load cases.
- Prototyped an overhead-bin locking mechanism with solenoid-driven actuation, developing CATIA models for latch packaging, mating interfaces, and mechanical clearance control in a high-use cabin environment.
- Converted topology optimization output into manufacturable CATIA geometry for an aluminum 2024-T3 tray table assembly, preserving mounting interfaces while manually refining support ribs, cutouts, and internal load paths for vendor review.
- Supported C919-800 cabin component packaging by reviewing CATIA V5 clearances, interface constraints, installation feasibility, and electromechanical component compatibility for cabin interior assemblies.
- Benchmarked secondary-source suppliers for C909 cabin components against technical, manufacturing, and airworthiness requirements.

ENGINEERING PROJECTS

Pneumatic Kinetic System: "Launch & Snatch"

Sept 2025 - Dec 2025

- Designed a crank-slotted lever mechanism for rapid linear actuation, resolving guide-rail binding by adding a pulley-assisted counter-moment to reduce side loading on the moving carriage.
- Developed SolidWorks part and assembly models for a pneumatic launch-and-retrieval mechanism, tuning link lengths, slot geometry, rail clearances, and fastener locations for laser-cut and PLA 3D-printed prototypes.
- Ansys Discovery performed contact-stress checks on guide rail components and redesigned high-contact regions to improve durability for repeated actuation cycles.
- Applied tolerance stack-up analysis to laser-cut linkage and rail components, controlling slot clearance and fastener fit to reduce assembly interference during prototype build.

Remote-Controlled 4-DOF Robotic Assistant

Jan 2023 - Dec 2023

- Designed a 4-DOF robotic assistant with lead-screw-driven linear motion, sizing 3D-printed joints and actuator mounts to balance stiffness, motor torque demand, and part weight.
- Reduced load-bearing joint mass by 25% through FEA-guided material removal while maintaining stiffness around motor mounts, screw supports, and arm connection points.
- Packaged ESP32-CAM, control electronics, and wiring harnesses inside a 500 × 440 × 300 mm robot envelope, adding service clearance and ventilation paths to reduce wire interference and heat buildup.
- Built and iterated 3D-printed robotic arm components, adjusting joint geometry, fastener locations, and support ribs to improve assembly reliability and motion repeatability.

Air-Bubble Hydrodynamic Drag Reduction

Feb 2024 - Dec 2024

- Designed a ventilated cavity structure for a 3D-printed hull to evaluate bubble lubrication effects; utilized MATLAB for least-squares regression to quantify a 15% drag reduction relative to bubble flow rate.
- Applied physics-based modeling to correlate air-injection pressure with boundary layer skin friction reduction, validating results through physical load cell testing.

TECHNICAL SKILLS

Software	CATIA V5, SolidWorks, Ansys Workbench, MS Office, AutoCAD, HyperMesh, Abaqus, Star-CCM+
Regulation & Standards	FAA's 14 CFR Part 25, 21 135, CCAR-25, EASA CS-25, GD&T, MBD (ASME Y14.5)
Programming	Python (NumPy, Matplotlib), MATLAB, C++, C, SQL, Git, AI Coding (Prompt Engineering)

EDUCATION

University of Waterloo, Waterloo, ON

Expected April 2030

Bachelor of Applied Science (B.A.Sc.) in Mechanical Engineering (Co-op)